



**ST JOSEPH'S INSTITUTION
END-OF-YEAR EXAMINATION 2020
YEAR 1**

CANDIDATE
NAME

MARKING SCHEME

CLASS

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INDEX
NUMBER

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GEOGRAPHY

28 September 2020

Additional Materials : Writing Paper

**1 hour 45 minutes
(0800 – 0945)**

READ THESE INSTRUCTIONS FIRST

Write your class, index number and name on all the work you hand in.

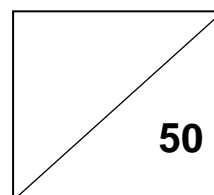
Write in dark blue or black pen on both sides of the paper.

Do not use staples, paper clips, glue or correction fluid.

Start each section on a **separate writing paper**.

Submit Sections A, B and C separately.

The number of marks is given in brackets [] at the end of each question or part question.

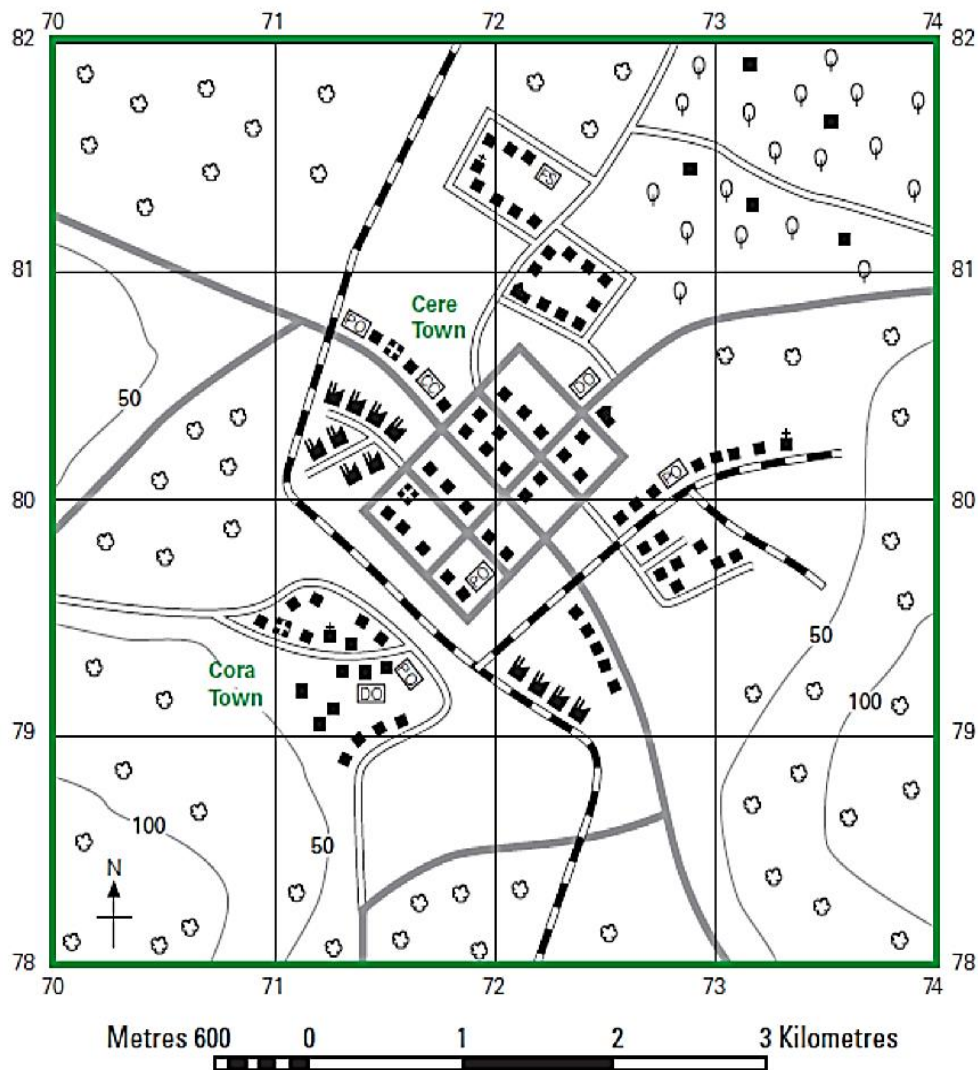


SECTION A: (10 marks)
Topographic Map Reading

Answer **ALL** questions.

Write your answers on the **Writing Paper** provided.

1. Study the section of map extract of Cere and Cora Town, central Italy, and answer the questions that follow.



LEGEND

Building	■	Factory	⚙️	Railway track	—+—
District office	□	Fire station	🚒	Shrubs	☁️
School	🎓	Community centre	🏠	Rubber plantation	—Q—
Police station	🚓	Post office	📮	Contours (in metres)	—50—
Hospital	🏥	Major road	—		
Church	⛪	Minor road	—		

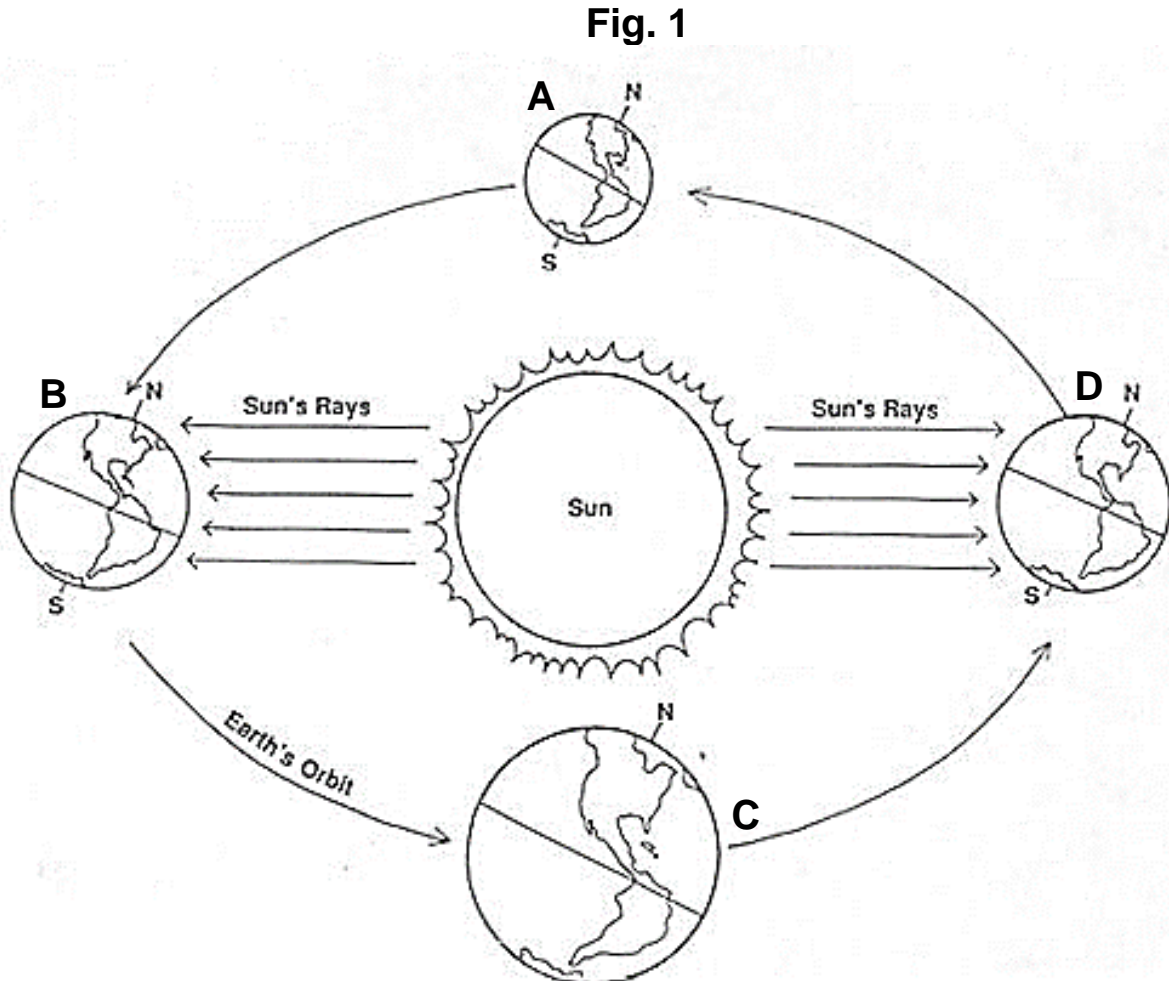
- (a) State the 4-figure grid square of the hospital found at Cere Town. [1]
 • 7180
- (b) The railway track and the minor road intersects at a particular point on the map. Provide the 6-figure grid reference of the intersection point. [1]
 • 726798 (± 1 for 3rd and 6th digits)
- (c) (i) Describe the locations of the post offices on the map. [2]
 • *General trend: The post offices are located along transport routes.*
 • *Examples: along railway tracks, major roads and minor roads.*
(1m for description of 'general trend'; 1m for use of examples to support answer)
- (ii) Give a reason for the locations described in (c)(i). [1]
 • *The post office manages mails and parcels from different parts of the world therefore it is important for them to locate near transport routes so that it is easier to transport the mails and parcels to where they are supposed to be delivered.*
 • *It provides great convenience for the people living in and around the areas to access postage services easily.*
- (d) Name a physical feature found in grid square 7178. [1]
 • *Shrubs, hill*
(Any one of the above)
- (e) State a possible use of the buildings found on the northeastern part, grid square 7381, of the map. [1]
 • *The buildings probably house the workers from the rubber plantation.*
- (f) What is the main type of transport in Cora Town? [1]
 • *Land transport like cars, bicycles, motorcycles, buses etc.*
- (g) (i) Bala visited the fire station and decided to head to the community centre. In which direction would Bala be heading towards? [1]
 • *Southwest direction*
- (ii) Calculate the straight-line distance travelled by Bala. [1]
 • *3.2 cm \rightarrow 1.6km (scale is 2cm:1km)*
(Accept range between 3 cm to 3.4cm i.e. 1.5km to 1.7km)

SECTION B: (32 marks)**Data-response Questions (4 x 8 marks)**

Answer **ALL** questions.

Write your answers on a fresh piece of **Writing Paper**.

2.(a) Figure 1 shows the revolution of the earth around the sun.



Source: <https://i.pinimg.com/originals/fc/4c/d9/fc4cd92d66e74830ece0d07d3163f5ce.jpg>

- (i) Study **Fig. 1** and identify the **two** positions (**A, B, C** or **D**) where the phenomenon, midnight sun*, will occur. **– NOT TESTED IN 2023 EYE** [2]

*Midnight sun is a natural phenomenon when the sun remains visible at midnight.

- *Position B*
- *Position D*

- (ii) Study **Fig. 1** and explain why midnight sun occurs. **– NOT TESTED IN 2023 EYE** [2]

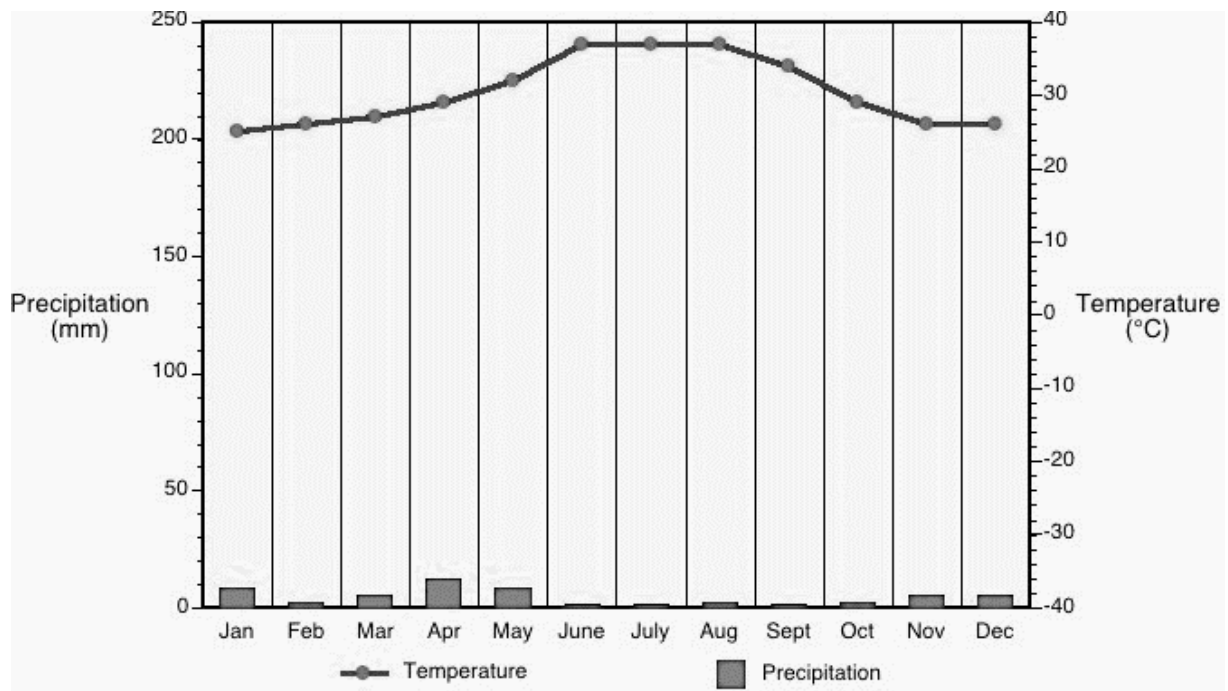
- *This is because the Earth's axis is tilted at an angle of 23.5° and*
- *when the northern and southern hemispheres are experiencing summer and the areas where midnight sun occur fall within the day*

zone, regardless of any time of the day, over a period of about 3-6 months.

2.(b) Figures 2A and 2B show the climographs of 2 deserts.

Fig. 2A

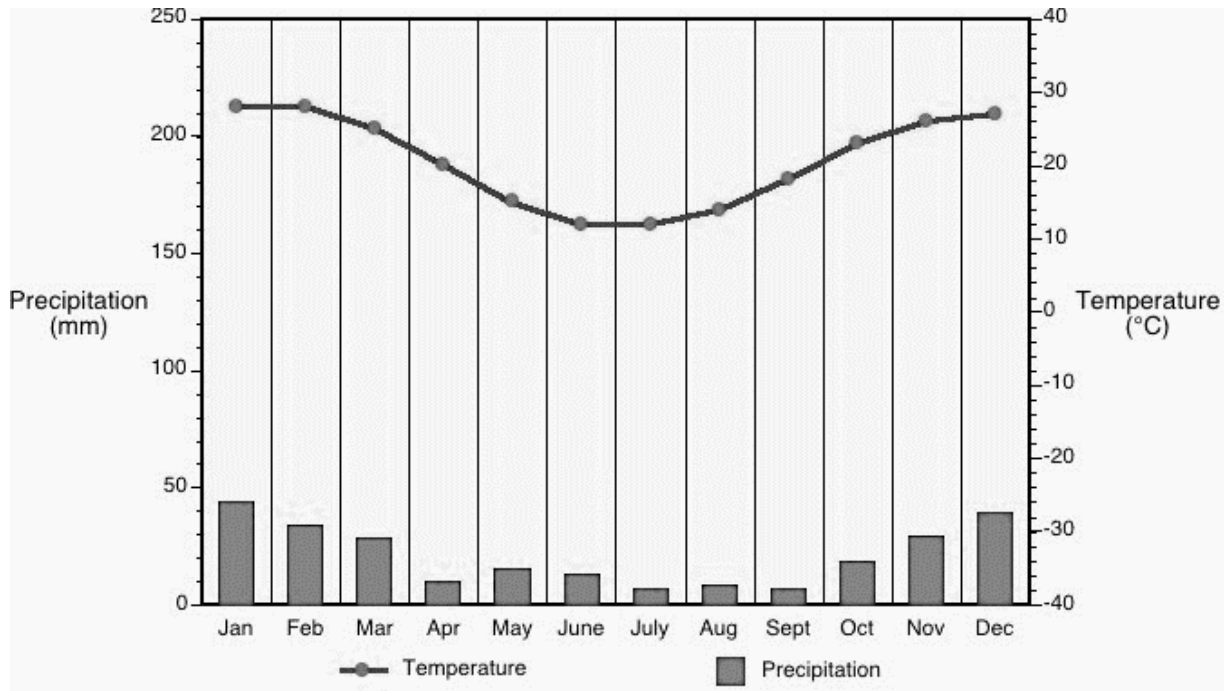
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly
Temp. (°C)	25	26	27	29	32	37	37	37	34	29	26	26	30
Precip (mm)	8	2	5	12	8	1	1	2	1	2	5	5	52



Source: <http://www.physicalgeography.net/fundamentals/7v.html>

Fig. 2B

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly
Temp. (°C)	28	28	25	20	15	12	12	14	18	23	26	27	21
Precip (mm)	44	34	28	10	15	13	7	8	7	18	29	39	252

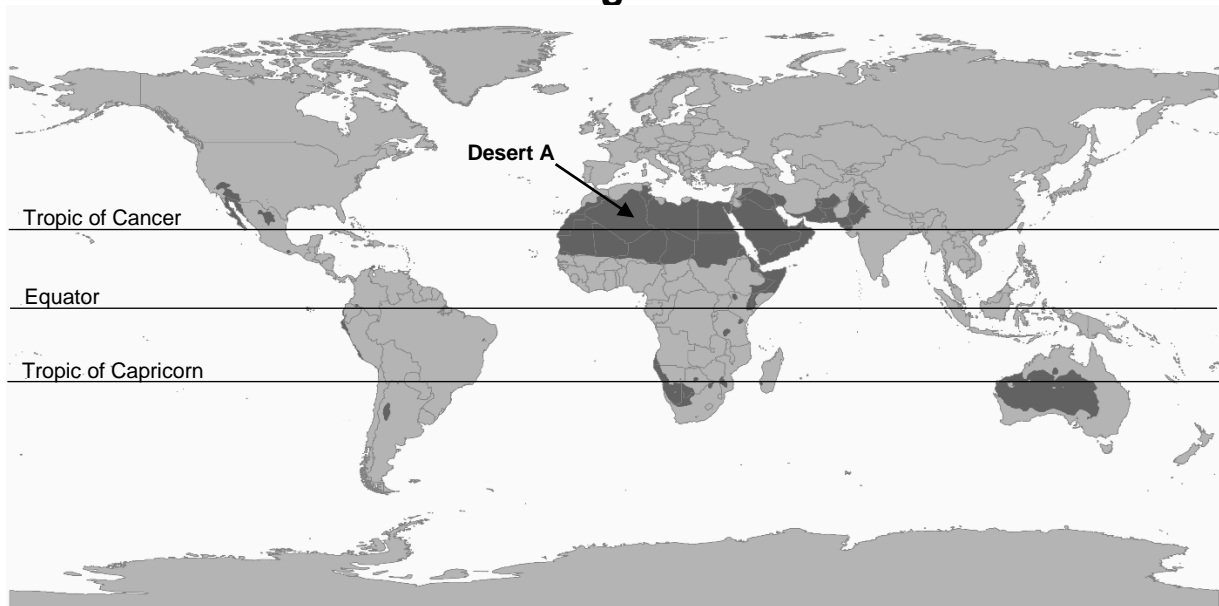


Source: <http://www.physicalgeography.net/fundamentals/7v.html>

- (i) Study **Fig. 2A** and **Fig. 2B** and identify the figure which shows an arid tropical environment in the **Southern Hemisphere**. [1]
- **Fig. 2B**
- (ii) Study and use **Fig. 2A** and **Fig. 2B** to explain and support your answer in (b)(i). [3]
- Temperatures during summer are usually higher than the rest of the year.
 - Southern Hemisphere experiences summer during December to February.
 - In Fig. 2A, the temperatures from December to February are the lowest, ranging from 25-26°C.
 - Whereas, in Fig. 2B, it can be seen that the temperatures in December to February are higher than the rest of the year, with the highest temperatures of 27-28°C occurring during those months.

3. Figure 3 shows a map indicating the locations of tropical deserts.

Fig. 3

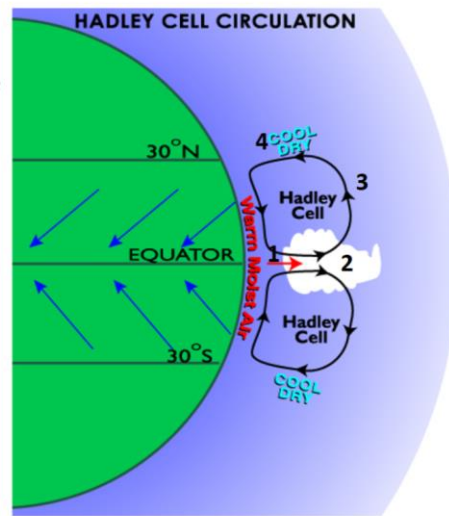


Source: <https://i.pinimg.com/originals/99/7c/60/997c60f1322ae79e2ebb54bbc73b07d0.png>

- (a) Study **Fig. 3** and describe the spatial distribution of tropical deserts indicated in darker shade. [3]
- *Point: The tropical deserts are found 15-30° North and South of the equator, along the Tropics of Cancer and Capricorn*
 - *Elaboration & Evidence (1): Mostly located in the continents of Africa, Asia and Australia.*
 - *Elaboration & Evidence (2): Along the west coasts of North America, South America, North Africa, South Africa and Australia*
- (b) Study **Fig. 3** and identify **Desert A**. [1]
- *Sahara Desert*
- (c) With the use of a well-labelled diagram, explain how Desert A is formed. [4]

[1) Subtropical Highs / Hadley Cell (Explanation with diagram)]

1. Hot, moist air rises into the atmosphere near the Equator.
2. As the air rises, it cools and drops its moisture as heavy tropical rains (include the rain in your diagram).
3. The resulting cooler, drier air mass moves away from the Equator, polewards as the stratosphere acts as a ceiling which prevents the air mass from rising higher.
4. As it approaches the 15 to 30°N & S latitudes, the air mass cools and descends. As it descends nearer to the Earth's surface it warms and dries up. The descending air mass also hinders the formation of clouds, so very little rain falls on the land below.



4.(a) Figure 4 shows a tropical desert area.

Fig. 4



Source: <https://softypapa.files.wordpress.com/2014/12/>

- (i) Study and use **Fig. 4** to describe the tropical desert landscape. [2]
- *In the background, there are sparse vegetation consisting mainly of small trees and shrubs.*
 - *In the foreground, there are small rocks and coarse-grained sediments.*
- (ii) Study **Fig. 4** and explain how the ground of the tropical desert look the way it does. [2]
- *Desert ground is made up of different sized sediments and when wind blows over the ground, lighter/fine-grained particles will be lifted and removed.*
 - *Over time, more and more lighter/fine-grained particles are removed, leaving behind larger/coarser grained particles, creating desert pavements.*

4.(b) Figure 5 shows a type of landform created by wind in a desert.

Fig. 5

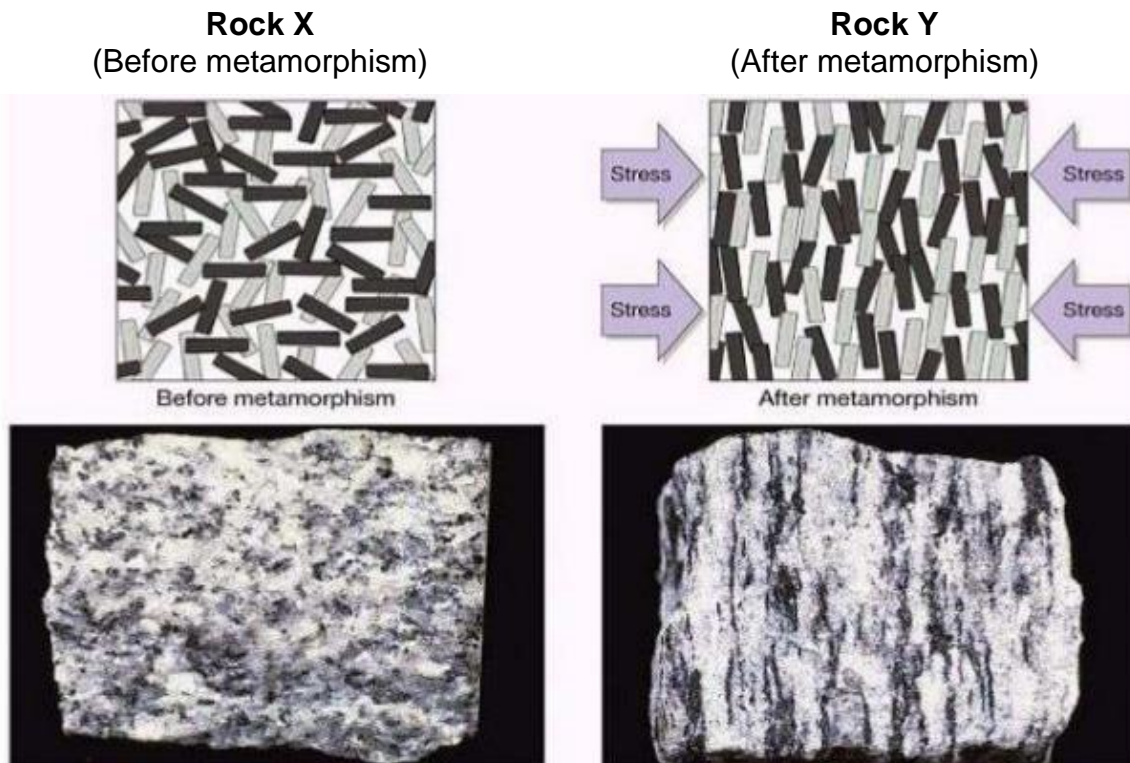


Source: <https://microbesinthemud.files.wordpress.com/2014/07/>

- (i) Study **Fig. 5** and explain how the landform was created by wind. – [3]
NOT TESTED IN 2023 EYE
- *When presence of vegetation such as grasses or shrubs obstruct the wind, wind speed will decrease.*
 - *When wind speed decrease, sediments carried by wind will be deposited and lodged into the obstruction*
 - *Over time, a mound will grow over the obstruction, resulting in a crescent-shaped feature called barchan dune.*
- (ii) Study **Fig. 5** and describe a factor which may change the appearance of the landforms. – **NOT TESTED IN 2023 EYE** [1]
- *Changes in wind speeds*
 - *Changes in prevailing wind direction*

5.(a) Figure 6 shows diagrams of a rock, before and after metamorphism.

Fig. 6



Source: <https://storymaps.arcgis.com/stories/086309c033cf4bd9a1632aa931162edc>

- (i) Study and use **Fig. 6** to describe the change in appearance after the rock has undergone metamorphism. – **NOT TESTED IN 2023 EYE** [2]
- *Before: The rock is generally grainy, with evidence of coarse-grained crystals.*
 - *After: Rocks look foliated, with parallel alignment of minerals / OR form bands with crystals.*
- (ii) Give an example of a rock before metamorphism (**Rock X**) and a corresponding example of the rock that it will become after metamorphism (**Rock Y**). – **NOT TESTED IN 2023 EYE** [2]
- Rock X (before metamorphism)
 - Rock Y (after metamorphism)

Rock X: Granite

Rock Y: Gneiss

- 5.(b) Figure 7 shows the ancient ruins of Angkor Wat Temple in the Southeast Asian country of Cambodia.

Fig. 7



Source: <https://www.ancient-origins.net/sites/default/files/field/image/angkor-wat.JPG>

- (i) Study **Fig. 7** and identify the weathering process that has taken place. [1]
- *Weathering caused by the growth of tree roots*
- (ii) Study **Fig. 7** and explain how climatic conditions have played an important role in the disintegration of Angkor Wat Temple. [3]
- *Cambodia is a country within the tropical region, therefore it experiences high temperatures, high precipitation and high humidity*
 - *These climatic conditions are very conducive for plant growth*
 - *So, when seeds are lodged into the cracks of the temple roofs and walls, the conducive environment will caused the seeds to grow and gradually pry open the cracks in the roofs and walls and the roots will also crack the rock ground.*

SECTION C: (8 marks)**Open-response Questions (1 x 8 marks)**

Answer the question on a fresh piece of **Writing Paper**.

6.(a) Figure 8 shows the location of Mojave Desert.

Fig. 8



Source: IGCSE November 2019

Study and use **Fig. 8** to explain how Mojave Desert is formed.

[2]

- *Prevailing wind from the Southeast blows over the Pacific Ocean, picks up moisture and is forced to rise as it passes the windward side of the Sierra Nevada range. Air rises and as it does so; it cools, condenses and forms clouds, which brings about relief rainfall on the windward slopes of Sierra Nevada as the clouds get too heavy.*
- *Once the air has passed over the mountains, it descends and warms. As the descending air is denser than the rising warm air, it suppresses the rising warm air thus hindering the formation of rain and forms a rainshadow desert, Mojave Desert.*

- (b) With the use of **2 plant species** – one from tropical desert and the other from tropical rainforest, explain how and why these 2 plant species differ. [6]

The Mojave Desert experiences high temperatures and very low precipitation (Climate) therefore, the desert holly have jagged leaves which are almost vertical most of the day (Characteristic). This ensures that the sun does not beat down directly upon them as the temperatures in the day can go exceedingly high. This minimises the input on sun and keeps the leaf temperature from rising to fatal levels, which may possibly cause the plant to be dehydrated and possibly not able to survive the harsh temperatures. (Adaptation)

The desert holly leaves are pale green on the outside and succulent on the inside during the winter rainy season (Characteristic). This allows water to be stored and conserved for use during the large part of the year, where conditions are dry, so that it can withstand drought condition. (Adaptation)

In the tropical rainforests of Singapore experiences high temperatures, high precipitation and varying degrees of sunlight, so the plants have acquired special characteristics for them to adapt to the climatic conditions found in the different layers of the vegetation (Climate). The plants in the understory layer have larger sized leaves compared to plants in the canopy layer (Characteristics). One example is the fishtail palm. This is because in lower layers of the sub canopy layer, the amount of sunlight received is significantly reduced as it is blocked off by the canopy layer. As such, in order for the plant to maximise its capture of sunlight, the size of the leaves are grown larger so that optimum sunlight for growth would be made possible. Hence, these fishtail palm's leaves can grow up till 3 metres in size. In the canopy layer, these leaves are kept smaller so as to minimise water loss through transpiration as they are exposed to the elements of the temperature (Adaptation).

Plants are resilient and they have a way to seek out means to survive by acquiring unique features to adapt to the conditions of the arid tropical and humid tropical environments.

Level of Response Rubrics for Open-Response Question

	AO1 Knowledge/ Understanding	AO2 Application/Analysis	AO3 Expression
Level 1	No or little relevant knowledge and/or understanding , which is largely superficial or of marginal relevance; inappropriate case studies	Little attempt at application/analysis	Poor terminology, difficult to understand
Level 2	Relevant knowledge and understanding but with some omissions, case studies and examples well chosen	Some attempt at application; competent answer although not well-developed and tends to be descriptive	Acceptable terminology Some forms of organisation Can follow argument
Level 3	Accurate, specific and well detailed knowledge and good understanding; examples and case studies are well chosen and developed	Detailed application; well-developed answer that cover most or all aspects of question	Geographical terminology used appropriately Organised responses